

What is claimed is:

1. A vari-focal polar alignment scope comprising;
an objective optical system,
a relay optical system which relays an image formed
5 through said objective optical system to form a secondary
image, and

an eyepiece optical system for observing said
secondary image, in that order from the object side;

wherein said relay optical system comprises an
10 erecting vari-focal viewing optical system, including a
positive condenser lens element constituting a first relay
lens group, a positive second relay lens group, and a
positive third relay lens group, wherein said second and
third relay lens groups relatively move in a direction
15 along the optical axis thereof so as to vary the
magnification of said polar alignment scope, wherein the
following conditions (1), (2) and (3) are satisfied:

$$6.0 < f_o/f_e < 10.0 \quad \dots \quad (1);$$

$$-4.0 < M_{2L} < -1.0 \quad \dots \quad (2); \text{ and}$$

20 $0.2 < M_{3L} < 0.6 \quad \dots \quad (3); \text{ wherein}$

f_o designates the focal length of said objective
optical system;

f_e designates the focal length of said eyepiece
optical system;

25 M_{2L} designates the lateral magnification of said

second lens group of said relay optical system at a low magnification; and

M_{3L} designates the lateral magnification of said third lens group of said relay optical system at a low 5 magnification.

2. The vari-focal polar alignment scope according to claim 1, wherein a target plate having a scale thereon for setting the polar axis is provided at an imaging point of said objective optical system.

10 3. The vari-focal polar alignment scope according to claim 1, wherein said second relay lens group comprises a cemented lens having a positive biconvex lens element and a negative meniscus lens element, in that order from the object side.

15 4. The vari-focal polar alignment scope according to claim 1, wherein said third relay lens group comprises a cemented lens having a positive biconvex lens element and a negative meniscus lens element, in that order from the object side.